APPENDIX B

DOE Facility at Oak Ridge Tennessee
OSHA Safety and Health Program Evaluation
East Tennessee Technology Park (ETTP)
Executive Summary

An evaluation of the safety and health program at the Department of Energy's (DOE) East Tennessee Technology Park (ETTP) in Oak Ridge, Tennessee was conducted on August 10 and 11, 1998 as part of the Oak Ridge Pilot Project established between the DOE and the Occupational Safety and Health Administration (OSHA). The Pilot Project was developed to help the DOE and OSHA determine the feasibility of DOE's desire to move towards external regulation of its operations for occupational safety and health and give responsibility for these operations to OSHA. The specific purpose of this safety and health program evaluation was to meet objective number two of the Oak Ridge Pilot Project: "To assess the effectiveness of DOE safety and health programs, including contractors and subcontractors, and the impact these programs would have on OSHA enforcement activities at DOE sites."

The OSHA team conducting this facet of the Pilot Project consisted of :
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The evaluation was conducted using the general model of an OSHA Voluntary Protection Program (VPP) pre-approval onsite review. This report is written following a modified VPP format with additional attachments. Due to limited time and resources available, a more focused approach than would be in a regular VPP onsite review was used.

Factors addressed in assessing the site's safety and health programs, that mirror the elements of the VPP, are: OSHA 200 Log Recordkeeping, Management Leadership, Employee Involvement, Worksite Analysis, Contractor Program, Hazard Prevention and Control, Medical Program, and Safety and Health Training. The information and conclusions contained in this report are based on interviews with employees and management, records review, and a review of the sites written programs. The recommendations made represent the VPP perspective and may or may not be compliance driven. Due to time constraints, a tour of the worksite was limited. Therefore, the worksite analysis portion of this evaluation relied heavily on the simulated OSHA inspections that were ongoing.

The East Tennessee Technology Park is part of the Department of Energy's facility that at one time was involved in producing enriched uranium. Most of the business was active during wartime. Today, most of the activities have been shut down and the site is being reclaimed for privatization. Thus the main safety and health hazards at the site include those of general construction, demolition, radiation, hazardous waste, and facility maintenance.

The current Management and Integration contractor is Bechtel-Jacobs. They took over this responsibility form Lockheed-Martin Energy Systems on April 1, 1998. As a result, the employees at the site are experiencing a transitory period. This has had some negative effect on the safety and health system which is described in specific sections of this report.

There are approximately 2400 employees at the site. These include 1700 Bechtel-Jacobs employees and 700 Lockheed Martin Employees. There are currently 50 subcontractor employees. Employees are represented by the Oil, Chemical, and Atomic Workers; and the United Plant Guard Workers of America. The site is appropriately classified in standard industrial classification (SIC) code 2819, inorganic chemicals.

The current three-year combined injury/illness incidence rate (IIR) and lost or restricted workday rate (LWDI) for the site for the period of 1996 to 1998 (year to date) are 3.46 and 1.64, respectively. These rates are 3.8 percent and 8.8 percent below the most recently published BLS rates for SIC 2819. It should be noted that sub contractors rates were not included in these calculations. Moreover, the OSHA Team noted problems with recordkeeping practice that would offset the rates.

Overall, site management has a good attitude towards safety and health. Management was very helpful in organizing the team's activities. The Department of Energy employees responsible for safety and health oversight at ETTP were extremely helpful to the team. Bechtel-Jacobs' management system is very well organized and includes safety and health responsibilities. Due to the very recent take over of the site, the implementation of many of the systems are still in the beginning stages, including Bechtel-Jacobs' Integrated Safety Management System (ISMS).

Some programs reviewed by the OSHA team have not been in place for at least one year, which is a requirement of OSHA's VPP. Therefore, due to the recent take over of the site by Bechtel-

Jacobs, the transiency of employees and management systems, resulting deficiencies in the specific elements of the safety and health program, and type and nature of hazards found during the OSHA simulated inspections, the Department of Energy's East Tennessee Technology Park would not meet the requirements of OSHA's Voluntary Protection Program at this time. This report contains a number of suggestions that could move the site closer to that goal.

OSHA 200 LOG RECORDKEEPING

Year	Work Hours	Injury and Illness Incidence Cases	Total Lost Workday cases	Injury and Illness Incidence Rate	Lost Workday Rate
1996	7,513,270	152	66	4.05	1.76
1997	5,610,552	84	26	2.99	.93
1998 YTD	1,073,005	18	12	3.36	2.24
3 year totals and rates 1996-1998 (to 4/1/98)	14,196,827	254	104	3.46	1.64
1996 BLS Rates for SIC 2819				3.6	1.8
Percent below BLS rate				***3.8%***	***8.8%***

As can be seen from the chart above, the three-year combined injury and illness incidence rate (IIR) and lost or restricted workday rates (LWDIR) are 3.46 and 1.64, respectively. These rates are 3.8 percent and 8.8 percent below the industry average for SIC code 2819. The injury and illness data was obtained by reviewing the OSHA 200 logs, worker's compensation first reports of injury, employee medical files, first aid logs and reports and medical incident reports from the occupational health care program. It should be noted that the current M&I contractor assumed responsibility of the site in April of 1998. Their rates were included in the rates calculation in order to obtain a three-year rate. These records were complete and in order but did not support the data recorded on the injury/illness log. Reasons for this deficiency are explained below.

Other occupational health records, such as, employee medical records appear to be kept in accordance with accepted standards for medical confidentiality and employee access. Specific procedures exist for access of medical information and these procedures are appropriate.

The recordkeeping system for ETTP is managed by an employee with fifteen years recordkeeping experience at various DOE facilities. He has been responsible for record keeping at the ETTP site

for two years, and has been a Bechtel-Jacobs employee since they assumed the M&I contract at the site.

Bechtel-Jacobs is contractually required to report the injury and illness data of their subcontractors to DOE, and follow all regulatory reporting requirements, whether they be OSHA regulations, DOE Orders, or Work Smart Standards. It was noted by the OSHA team that this system has been lacking and that no audit or quality assurance program of the subcontractors' injury and illness records has been conducted. According to the written Integrated Safety Management System (ISMS), tracking the subcontractors' injury and illness data is the responsibility of the Subcontractor Technical Representative or Safety Advocate, without input or oversight from the Occupational Health/Recordkeeping Department at the site. Evidence that this responsibility is being carried out was lacking as the OSHA Inspection Teams, found it difficult to obtain subcontractor's OSHA 200 logs.

Problems noted were related to 1) timeliness of recording the injury/illness, 2) reporting of cases requiring work restrictions and 3) determining work-relatedness if a preexisting illness exists. In the first situation, the ETTP record keeper does not report a case that is questionable until the work-relatedness is absolutely determined. For example - several cases of upper respiratory illness were claimed to be work-related by employees working in a building that has been reported as having indoor air quality (IAQ) problems. A thorough indoor air quality investigation is now underway. Air sampling has been done identifying molds and mildews. Employees working in this building are allowed to wear respirators on a voluntary basis due to the number of complaints related to IAQ problems. In some cases air sampling showed the molds and mildews to be greater than the outside air levels and in other samples, the same level as the outside air. One of the employees in question has a known allergy to these microorganisms, was diagnosed with “Industrial Bronchitis” and lost time from work. The investigation of the work-relatedness has not been determined. Therefore, the record keeper has not recorded these cases on the log even though months have passed since these cases were first reported. Per OSHA recordkeeping guidelines, if record keeper is in doubt about the relationship between an illness and work, the record keeper should record the case and then “line it out” at a later date if work relationship is shown not to exist.

DOE uses performance-based contracts which vary among contractors, but may include injury and illness performance criteria. Subcontractors' injury and illness history is taken into account during the pre-qualifying stages. The OSHA Team cautions the use of monetary incentive awards that are linked to reductions in injury and illness rates as this may induce under-reporting.

<u>Recommendations:</u>

1) Record all suspected injuries/illnesses within six days of the report even when in doubt of the work-relationship. When it is determined the case is not work-related, then line-out the case on the log.

2) Record all cases of work-related injury if the exposure or hazard contributes to or aggravates a pre-existing illness/injury.

3) Record cases of work restrictions when the restriction affects any activity the employee may perform within the year.

4) Regarding the concern over the lack of a quality assurance program for subcontractor recordkeeping systems, it should be noted that OSHA's VPP requires the prime contractor to track the recordkeeping of the subcontractors. To meet the levels of the VPP and regulatory requirements, Bechtel-Jacobs should implement a system to audit and ensure quality and regulatory compliance of their subcontractor's injury and illness recordkeeping systems. In addition, this responsibility should be integrated with the Occupational Health/Recordkeeping Department at the site.

SAFETY AND HEALTH PROGRAM

Management Leadership and Employee Involvement

Management Commitment/Top Management Leadership

Bechtel-Jacobs' Oak Ridge Management and Integration Organization is very well organized. It includes a General Manager, shared Functional Department Managers, and specific Project Managers and teams. ETTP is one of nine projects currently under the Bechtel-Jacobs Oak Ridge M&I Organization.

Bechtel-Jacobs has implemented an Integrated Safety Management System (ISMS) which states their commitment to safety and health, their Zero Accident Policy, and commitment to DOE's Voluntary Protection Program. The General Manager has shown his commitment to safety and health through a signed statement entitled "Our Safety Culture". This statement is included in the (ISMS). In general, the ISMS somewhat mirrors the elements of OSHA's Voluntary Protection Program. It includes five management functions and seven guiding principles that encompass the elements of VPP, however it seems to be weak in the area of Employee Involvement. Specific weaknesses are described in the *Employee Involvement* section of this report.

At the ETTP site level, top management clearly shows their commitment to safety and health. This was exemplified by top managers taking the time to attend safety committee meetings, listen to employees' concerns, and meet with the OSHA evaluation team. Employees perceived that management is committed to safety and health however, communication is lacking and more time is necessary to make a judgement. The degree of follow-through on the Take Two Session report will be an important factor in determining the level of management commitment.

Clear goals and objectives for safety and health have been established. According to the ISMS, Bechtel Jacobs will establish performance objectives and measures annually. The primary goal for

Environment Safety and Health (ES&H) is zero accidents. This goal has been adequately communicated to employees which was evident during employee interviews, however most felt that this is and un-achievable goal. Methods for meeting this goal should be better defined and communicated to employees.

The ISMS was less understood by employees perhaps because it is still in its beginning stages at this site. Some employees feared that with the implementation of the ISMS they will not keep *Take Two* and *I Care/We Care* Programs, and the *ETTP Safety and Health Advisory Committee*.

Planning/Authority and Resource

Planning for safety and health is integrated with the overall management planning process. The ISMS describes how the scope of work will be defined, hazards will be analyzed, and controls implemented before work actually begins. The main safety and health planning is carried out is through the Safe Work Planning Groups. These groups generally consist of employee representatives and Bechtel-Jacobs Personnel. Generally these groups review the work plans that have been submitted. Subcontractor Technical Representatives and Safety Advocates may also be involved in the planning process. These functions seem to be gradually falling into place at ETTP.

The resources available for safety and health at ETTP vary. Many budgetary requests need approval from DOE. This is of concern and was mentioned by employees in the areas of hazard abatement and training. Bechtel Jacobs Environmental Safety and Health Department consists of one manager and is categorized as a functional management group. The ES&H department is shared by all nine projects that are on-going at Oak Ridge. ETTP is one of the nine projects. The ES&H functional manager works with specific program managers to deploy their staff to specific projects. Each project can include personnel with environmental, radiation, or industrial hygiene expertise, depending on the hazards of the project and the persons' strength in a specific discipline. Some of the ES&H personnel can be assigned to more than one project. Once they are assigned to a project, they are funded by that project. This system seems to be working at ETTP. However, it should be noted that the possibility for underestimating the ES&H needs of a particular project exists and therefore ES&H staffing decisions should be flexible and subject to change.

Line Accountability

Managers, supervisors, and employees are held accountable for meeting their responsibilities for workplace safety and health on their annual performance appraisals. This was indicated during employee and management interviews. Since Bechtel-Jacobs has been at the site for less than one year, performance appraisals have not yet been conducted, and in fact, are still being developed. There were no performance appraisals available for review by the OSHA Evaluation Team. In the past, managers, supervisors, and employees were reviewed under the Lockheed Martin System which includes a section for safety, environment and health.

Contractors and sub-contractors are held accountable for safety and health through their contracts. (See Attachment I). Sub Contractor Technical Representatives, and Safety Advocates are also given the responsibility to ensure that contractors and sub contractors are working safely. This has some of the hourly employees concerned that since the Safety Advocate is more of a management position, that they will not hold contractors to the same standards, and address all safety and health concerns. The Safety Advocate position is fairly new and it will take time to build trust between the Safety Advocates and hourly employees.

In certain cases it is unclear whose responsibility it is to correct identified hazards; DOE, Bechtel-Jacobs, or the particular sub-contractor. Several employees mentioned that sub-contractors have not corrected hazards that they pointed out. This gives the perception that sub-contractors are not held to the same standards of safety and health protection as ETTP employees and that top Bechtel-Jacobs management is not asserting their authority over sub-contractors.

Recommendations:
1). Ensure that hourly employees are kept informed of sub-contractor activities and have clear lines of communication to the Safety Advocates.

2). Improve the system to ensure that sub- contractors are held accountable for safety and health.

Employee Involvement

Employees were randomly selected by the OSHA safety and health program evaluation team from a roster of all Bechtel-Jacobs employees. The computer-generated employee list was provided by the company through the DOE ETTP site office. At the employer's request, the OSHA team agreed to a very limited number of requests from the employer to not interview certain employees who were engaged in work operations that could not be interrupted at the time the interviews were scheduled. The team does not believe that these exclusions from the list of employees materially affected the selection process or the outcome of the evaluation. One OSHA-selected employee was excused from the interview process, at the worker's request. Employees were comfortable talking to the OSHA evaluation team Without exception they offered their views and opinions and views freely and openly.

The ETTP site is in transition from a Management and Operations (M&O) contract to a Management and Integration (M&I) contract. Based on employees' remarks during interviews, this major transition, and the uncertainty surrounding its impact on workers, is a source of considerable concern. Often, the employees raised the issue of the transition without prompting by the interviewer, indicating that this matter is of highest importance to them. The OSHA team believes that these basic job security concerns probably affected the tenor of the interviews and the workers' responses to the interviews' questions.

The main ways employees are involved in the safety and health program at the site include the *I Care-We Care* program and participation on various safety committee meetings. There seems to

be a lack of employee involvement in safety and health decision making and planning, although it is stated in the written ISMS that employees will be involved in these activities.

Most employees indicated a basic level of awareness about the site safety and health program and were able to discuss some of the specific activities that the employer has undertaken at the site Most employees knew of the ISMS, Zero Accident, and Stop Work Authority policies. These programs were perceived to be beneficial, however many employees believed that these policies only apply to Bechtel Jacobs employees and not those of sub-contractors, especially the authority to stop work. There was also fear that as the transiency continues, these programs will be dissolved.

Several workers noted that the *Take Two For Safety* policy is beneficial, providing an indication that management views safety and health as an important aspect of the work operations and is not focused solely on production issues. *Take Two* refers to the policy of having employees set aside time at the start of a particular job to consider potential safety hazards and to take steps to address them beforehand.

A number of the workers expressed the general view that the employer does not place a very strong emphasis on safety and health, or at least they have not yet conclusively demonstrated this emphasis. As noted by some interviewees, the changeover to Bechtel-Jacobs occurred only four months ago, and the company is still in the early stages of moving to sub-contract much of the work while at the same time attempting to ensure safety and health throughout the worksite. Employees expressed the opinion that the company is going to find it very difficult to reconcile these two activities.

The OSHA safety and health program evaluation team was very impressed with the work that the company and workers had done so far to identify and address these labor-management concerns. In July 1998, a group of more than 60 managers and 60 workers had met to identify barriers to safety and health (and other employee-management issues) at the site, and suggest activities that would help resolve some of the problems identified. A member of the OSHA safety and health program evaluation team was fortunately able to attend a follow-up meeting of the site labor management safety committee, where these findings were presented. The OSHA team believes that implementing the committee's numerous recommendations will be a very intensive but worthwhile undertaking. The OSHA team views this approach as a positive first step to improve employee participation in safety and health activities at the site.

<u>Recommendations:</u>

1). Management should encourage employee involvement in safety and health activities, especially decision making, sub-contractor pre-planning hazard analyses, and on-going worksite walkthroughs, including sub-contractor worksites.

2). Employees' authority to stop work should apply in any case, including that of sub-contractors, without fear of reprisal.

3). The recently issued labor-management report on barriers has many useful methods that managers should continue to employ that will help demonstrate these concerns.

4). Increase employee involvement in the ISMS by including descriptions of the current programs (such as *I Care-We Care* and *Take Two),* safety and health committees, and obtain Union support.

Contract Workers (See Attachment I)

Worksite Analysis

Management Understanding

Based on a limited number of interviews, managers and supervisors demonstrated that they are genuinely concerned with employee safety and health issues, although other duties limited the amount of time they can devote to these matters. For the most part, managers rely on first-line supervisors and staff specialists for day-to-day attention to safety and health matters. They expressed confidence that these issues are receiving the necessary attention and that they are being informed of safety and health issues as necessary.

Supervisors and managers were able to identify the kinds of hazards to which their employees are exposed in the course of their work, thereby indicating a good understanding of working conditions. In addition, they maintain their own training in relevant safety and health areas and conduct regular meetings with employee where safety issues, including incidents involving workers, are discussed. Some employees, however expressed the concern that upper management did not show a presence on the worksite, and therefore does not have a complete understanding of the hazards that front line workers come in contact with on a daily basis.

<u>Recommendation</u>
1). The OSHA team believes that site managers should redouble their efforts to make sure that workers know that they are aware of the hazards of the worksite and employee safety and health concerns.

Industrial Hygiene

The Industrial Hygiene Department at ETTP has 12 people on staff including five certified industrial hygienists. Industrial Hygiene surveys and sampling strategies are conducted by ETTP using a “Charge Out Service” system in which IHs are assigned projects & are responsible for that project throughout its duration. This is based on the ISMS “team” approach. The supervisor decides, based on a job hazard analysis, who is needed on his/her team (usually HP, IH, Safety, etc.). The team decides which “tool” will be implemented to insure the job is done correctly and safely: SWP (Safety Work Permit), RWP (Radiation Work Permit), Job Hazard Instruction, Written Procedure, etc.

There are positive and negative aspects of this system. Some of the positives include the fact that since the project pays for the IH's services, they must be visible and active on the project, and they become very knowledgeable about the project from the beginning stages.

The negative aspects are that the project may not want to "foot the bill" for what the manager may consider "unnecessary sampling". However, this rarely occurs.

Approximately 90% of the air sampling is conducted due to "Special Requests". These requests can be from a project request, supervisor request, IH field specialist, "*I Care-We Care*", bargaining union request**,** medical department or, DOE concern. The remaining 10% is routine, standardized sampling, such as, TSCA maintenance outage, asbestos, and lead. A vast array of equipment is available for screening and full-shift sampling.

There are 3 technicians who keep equipment maintained and calibrated and do most of the routine sampling. To insure accuracy and consistency, testing and calibration procedures and skills test given to technicians are detailed in the "Air Sampling Notebook".

There have been comprehensive OSHA-type inspections ('91-'92) and during "due diligence" earlier this year by Bechtel Jacobs. "Walk downs" inspections are conducted at least once a year for each building (by a team - IH, Safety, Environmental, any speciality type persons needed).

The IH department is "gearing down" due to the reduced volume of work or decreased number of employees (in many buildings, no employees) or fewer buildings occupied by BNFL or OMI so not as much "scheduled" monitoring is being conducted.

Different sampling strategies have been used to ensure that employees' exposure to health hazards is accurately assessed. These include sampling every worksite for some materials, for instance, such approximately 1500 samples were taken for cyanide. Other strategies include consulting the NIOSH book for devising statistical sampling, evaluating the job to determine the most likely job in which exposure would be highest (welder vs. assistant, etc.), and sampling 25% of workers on a rotational basis. In many cases by the time the project is completed, almost all, if not all, workers have been sampled.

Sampling results of employees' exposures are compared to either the PELs or TLVs - whichever is more conservative. The Brief & Scala model is used for extended workshift sampling. Their lab is AIHA accredited. Computerized sampling records appear to be in order and are easily accessed by employee name, dept, etc. Hard copies of the sampling data are kept as the main record copy.

They have sufficient expertise within the department. The staff is very knowledgeable about sampling strategies and the sampling database. They have been working on a Health Hazard Inventory Module for several years - this would compile all sampling data by hazard as associated with the type of work (i.e., what data has been generated during small glove bag jobs, while

cleaning out the firing range, etc.). The individuals within the IH dept work together - they help each other out and know the expertise of persons within the group.

Recommendations:

1). Ensure that routine industrial hygiene sampling continues. Sampling strategies should be pro-active, and not solely based on employee requests.

2). Ensure that adequate funds are incorporated into the budget for industrial hygiene sampling.

Pre-use Analysis

New processes, materials, and equipment are analyzed before use begins to determine potential hazards in many ways. Pre-planning meetings are conducted prior to beginning any new projects. These meetings include many people including Safety Work Planning Group Members, Safety Advocates and Subcontract Technical Representatives. Job hazard analyses are also conducted and updated as the work plan changes. This system seems to be working in an adequate manner, however some employee interviews indicated that pre-planning was not done on a routine basis, but only for certain specific jobs. The requirements of the ISMS for pre-use planning seem to be gradually falling into place.

Hazard Analysis

Routine hazard analysis is usually conducted by a safety advocate, planner, and a cross section of employees and crafts. Job hazard analyses are used, but have not covered construction and service subcontractors. The JHA contains a written procedure that evaluates work/task complexity, risk and frequency by supervisor and a JHA team. There is evidence that the JHA's are identifying hazards and that work procedures change accordingly, especially if the project is related to HazWoper.

Routine Inspections/Hazard Correction Tracking

According to employee interviews, inspections of the worksite are conducted but few knew if they were on a routine basis, or if there was a set schedule for conducting self-inspections. It seems that the inspections are conducted when there is an employee concern brought up at a monthly meeting, but there is no set protocol per se. It was noted that managers actively look at their spaces and may occasionally talk with employees about the work area, or participate in a weekly Facility Excellence Walk-Down. A limited number of Facility Excellent Walk -Down reports were reviewed and it seems as if the teams conducting the inspections are management based. This was also evident by the fact that hourly employees interviewed were not familiar with the Facility Excellence Walk-Downs.

Overall, the major concerns were that there was no set protocol telling employees what specifically to look for during self-inspections, what the frequency of inspections is, inspections did not cover all sub-contractors and lessees, and there was no formal system to document that identified hazards were corrected. Exceptions were through *I Care-We Care* and the *QA* program. The fact that the OSHA inspection team identified many hazards at the site is evidence that the routine self-inspection process is weak.

Recommendations:

1). Improve the self inspection process by including employees at all levels in self-inspections, Facility Excellence Walk Downs, etc. Implement better inspection procedures and/or update hazard recognition training so that those conducting the inspections know what to look for. Ensure that self-inspections cover all work areas, including sub-contractors.

2). Ensure that there is a formal method to communicate to employees when and how hazards have been corrected. If hazards are tracked on the Energy Systems Action Management System, employees should have access to these reports.

3). Ensure that job hazard analyses and self-inspections are performed on a routine basis and not only for specific jobs.

Employee Hazard Reporting System.

A number of employees praised the effectiveness of the *I Care - We Care* program, which provides a process for employees and visitors to submit safety and health issues, near misses and other suggestions to ETTP management for resolution. They noted that this labor-management initiative is a good mechanism to get hazards investigated and corrected. The *I Care - We Care* approach provides timely responses and issues are tracked through to completion, with adequate feedback to the employees. The DOE Employee Concerns system was viewed by some employees as a less effective as a means to address hazards, noting that this process was less responsive and timely than the *I Care - We Care* program. Other employees that were interviewed relied on verbal reporting of hazards to their supervisors. This is a less effective method, and some employees expressed concern that they would be reprimanded for reporting hazards to their supervisors.

Recommendation:

1). Implement a system to ensure that if an employee reports a hazard in a sub-contractor work area, it is corrected, tracked, and communicate back to employees. Employees should be rewarded, not reprimanded, for reporting hazards.

Trend Analysis

Trends of accidents, injuries, and illnesses are conducted mainly by the record keeper and industrial hygiene department. While the medical records are computerized, there is no review of aggregate data for purposes of medical surveillance. This is partly due to the UNIX system, which is not user-friendly. Another barrier, however, is the difficulty of looking for patterns because of the high rate of internal job mobility, both between sites and between job categories. Because the three DOE sites were for many years the chief source of employment regionally, individuals would frequently change jobs (for example, from security to janitor) during periods of downsizing rather than obtain work within a given trade elsewhere. The medical department does receive aggregate illness and injury/ lost work time reports from ES&H.

Recommendation:

1). Open the lines of communication between the EH&S staff, occupational health physicians and nurses so that the latter become involved in review of the occupational as well as non-occupational injuries and illnesses to note trends and potential clusters.

Hazard Prevention and Control

Hazard Elimination or Control

A variety of hazard controls are used to limit or eliminate employees' exposure to health hazards. For example, ventilation systems have been incorporated where feasible (such as asbestos removal, welding and blasting operations, lead control, etc.). Examples of other engineering controls in place include fume hoods in labs, ventilating confined spaces, employees use HEPA vacuums to clean out firing range (& wear respirators with HEPA filters). A hearing conservation program for employees in high noise areas was mentioned, but no examples of engineering controls were described. Administrative controls have been used for heat stress (i.e., work during early morning hours and rotation). Currently, there are few cases of over-exposures on site (3 overexposures last year). One area (storage vaults in the basement of gaseous diffusion building) was mentioned in which there are indoor air quality complaints. A ventilation system may be necessary, but money may be the prohibiting factor.

The OSHA simulated inspection teams found many uncontrolled hazards that should have been controlled. It was also noted that it is more difficult to get hazards corrected if the hazard exists in a sub-contractors' work area. This is evidence that the authority and responsibility for hazard abatement methods are not clearly defined and communicated among all employers and employees at the facility.

Recommendation:

1). Develop and implement a system that defines lines of authority and responsibility for hazard abatement which is communicated to DOE, contractors and sub-contractors.

2). Ensure that proper hazard control methods are investigated by all affected parties and that adequate funds exist to implement them.

Preventive Maintenance

A preventative maintenance program exists at the facility and has been in place for approximately three years. The preventative maintenance program covers TSCA, CNF and vehicle maintenance.

Recommendation:

1). Update the current preventive maintenance program to include equipment in all areas of the facility.

Occupational Health Care Program (See also, Attachments II and III)

The Occupational Health Care Program was evaluated using an eleven point evaluation tool. The evaluation shows a well-run occupational health care program that addresses both occupational and non-occupational needs of the employee population although the staff has recently been reduced from twenty- three to twelve. The nursing services were the most affected by a reduction fro six to two nurses. Physicians were reduced from three to two. Staff reductions have had an adverse impact on routine quality assurance activities, have eliminated routine worksite walkthroughs by clinic personnel, and have eliminated on site physical therapy and non-mandatory programs such as smoking cessation. The condensation of DOE orders concerning medical facilities, may have been interpreted as permission to reduce services.

Employees were generally satisfied with the availability and quality of medical care. However, certain procedures and the medical directives need to be updated to reflect the actual processes as they are currently performed with reduced staffing. With recent reduction in OHCP staff it appears that changes in the OHC program may be necessary. The transfer of responsibility of the Occupational Health Care Program from Lockheed-Martin Energy Systems to Bechtel-Jacobs and subsequent staffing changes are recent. It will take time to adjust the procedures, determine which services shall be continued and adapt the written procedures to reflect those changes.

Recommendations:

1).The process for communicating hazards to the OHCP staff should be written to reflect the process that is in place.

2) . Each employee's medical file ought to include a readily accessible page of information regarding the hazards to which the employee may be exposed.

3). The occupational health care staff should be involved with employee training program re: adverse health effects of hazards through either writing, reviewing or delivering the information in the training program.

4). The OHCP staff should be involved with the company's trend analysis to enhance the epidemiological analysis of injury and illness patterns and to plan risk reduction strategies.

5). The quality assurance program should be re-instituted at a level which can accurately be performed by the existing staff.

Emergency Procedures

There is a system in place for emergencies. Employees were aware of it and knew what to do in the case of emergencies. The general system has been in place for more than 20 years. It is based on the Facility Emergency Manual. Every building has a specific program. Emergencies at the site are generally related to fire concerns, gas cylinder rupture, weather related concerns, and radiological and criticality concerns. The two general emergency responses are to evacuate or shelter in place. Employees are notified of an emergency by the alarm system. The clarion alarm is for criticality followed by a public address announcement with instructions. The speakers can be heard outside. For standard alerting, there is a two part horn (high and low pitch) with a PA explanation. Either the entire plant is subject to evacuation upon notice or there may be sector or building. Emergency evacuation drills are conducted on a regular basis. During the drill all employees are accounted for at designated assembly points.

Employees also receive General Employee Training (GET) which explains in general terms the hazards of the facility, the alarm systems, restricted areas, and what to do in and emergency. Additional training that employees may receive, depending on their job, include fire hazards, chemical hazards, and hazardous waste and emergency response training.

Safety and Health Training

The Bechtel-Jacobs Training Department consists of approximately ten employees who are shared among other DOE contract sites. There are seven assigned to ETTP, which include a training manager and training analysts. The training analysts duties include contracting with the Center for continuing Education (CCE) and other sources to provide training, building training programs,

tracking training of individuals and conducting training. Currently, most of the employee training programs are being "blue sheeted" from the old Lockheed Martin systems.

The types of training employees receive include awareness, orientation, and real training. Awareness training is usually conducted in the classroom, by video, or on the Internet. All employees receive new employee orientation training which lasts four hours and included security, benefits, human resources and policies. General Employee Training (GET) includes hazard communication, radiation protection, and personal protective equipment. All persons on-site for more than ten days must receive GET.

Real Training includes specific goals and objectives and is based on specific requirements and ES&H needs. The supervisors with assistance from training analysts complete a training needs assessment for each employee which outlines the employee's job duties and the training required to perform those jobs.

Training can be administered by different sources. Some of the training such as Emergency response is provided under contract with LMES'(Lockheed Martin Energy System) CCE and can be given by Subject Matter Experts (SME's). SME's and training analysts also conduct most of the on-site training. Supervisors who have had train the trainer courses can also provide on the job training (OJT). An important aspect of OJT training is that for each and every job, a pre-job briefing is given by the supervisor (i.e., 10 jobs a day, you'd have 10 different briefings). There is evidence that the pre-job briefings are being conducted, however employees indicated that pre-job briefings are repetitive and could be streamlined to focus on the complex, new scope of work, thus increasing their effectiveness.

The Oil, Chemical and Atomic Workers Union conducts the HAZWOPER training. No written tests are conducted (however verbal questioning and skills tests may be done). Although 29 CFR 1910.120 does not specify employee testing, in .120(e)(6), the written certificate is given to employees who have satisfactorily completed the necessary training program. If future audits are performed, would suggest that Section G's Summary of Evaluation Questions found in 1910.120 Appendix E (under Suggested Program Quality Control Criteria) be used to determine the quality of the HAZWOPER training program.

The Subcontract Technical Representative (SRT) verifies that subcontractors are trained. The training dept. will provide site-specific training such as RW2 and GET for sub-contractors, but has no authority over CROET employees. This raised some concern among employees.

Active training files are managed by the training department. They can access the history of training on an individual. Employees can request copies of their training records. Archived training files for terminated employees are managed by a private company.

Overall, the training program includes all employees, records are kept and readily retrievable, tracking of training is satisfactory. Because of the M&I (Management & Integration) process,

many changes are occurring at once: changing training from LMES to B-J format and eventually privatizing the majority of training for the site. It appeared the majority of OSHA required training is being conducted and that employee and supervisor training is adequate.

Recommendations:

1). Implement formal methods for auditing the effectiveness or quality of training.

2). Develop and implement formal employee feedback mechanism (i.e., written evaluations).

3). Enhance the training programs as recommended during the Take Two Pilot Session.

General Review of Safety and Health Conditions

The OSHA safety and health program evaluation team did not conduct first-hand examinations of the facility to assess safety and health conditions for housekeeping or other general safety and health conditions. Instead, the team relied on the findings from simulated OSHA inspections that were being conducted concurrently as a separate objective of the OSHA/DOE/Oak Ridge Pilot Project. As this report is written, a number of the simulated inspections have been finalized, with citations issued -- some of them classified as serious -- and additional citations are pending. This may mean that the site needs to improve the hazard recognition skills of its staff.

Attachment I

East Tennessee Technology Park
Contract Considerations

Introduction

OSHA conducted a health and safety program evaluation at the Department of Energy (DOE) East Tennessee Technology Park (ETTP), a Government-Owned-Contractor-Operated (GOCO) entity. Included in this evaluation was an examination of the contractual mechanisms DOE has in place to assure worker protections, and is provided below. Lists of employees and documents interviewed or reviewed are included in Attachments 1 and 2.

DOE/Contractor Relationship

DOE is significantly dependent on contractual relationships to assist in carrying out its mission and function. These relationships allow DOE to tap into the most cost-effective or most desirable candidates to provide or further develop highly specialized expertise; however, this also fosters highly dependent relationships. Via this mechanism, DOE has established and currently provides oversight to GOCO facilities where defense, production, research, and remediation functions are conducted by contractors (sub- and prime). Subcontractors are normally hired via prime contractor mechanisms, and provide a wide spectrum of duties and responsibilities to support the primes and DOE.

Because many of the tasks associated with DOE's mission are inherently high hazard, it is essential that contractual obligations include significant worker protections. To be effective, these protections should apply equally across the workforce, and include subcontractors, contractors, and DOE employees whom mainly oversee contractor activities. Presently at ETTP, a variety of mechanisms are in place to assure the prime contractors meet worker safety and health obligations, and a more limited approach is exercised over subcontractors.

In early 1996, DOE initiated a radical departure from the existing oversight model at the Oak Ridge complex. DOE Oak Ridge Operations Office personnel responsible for health and safety were moved from a distant office setting into the mainstream activities at the sites. These professionals became part of "the line process", and a more direct interrelationship or matrix was established between contractor and overseer. An increased awareness of prime contractor and subcontractor activities was fostered by this reorganization of DOE resources, and appears better able to address immediate concerns.

Prime Contractors

Currently, two prime contractors are providing services to the Department of Energy (DOE) at ETTP (also previously known as K-25). The prime contractors and activities at this site are:

Prime Contractor	Employees*	Site/Activities
Bechtel-Jacobs Company (BJC)	1600-1700	ETTP/ Mainly hazardous waste management, remediation, incinerator operations
British Nuclear Fuels Limited (BNFL)	200-300	ETTP/ Mainly facility remediation (K-29, 31, and 33) and hazardous waste control

* estimate on site; total estimate of employees = 2,500.

It should be noted that although Y-12 is not covered in this evaluation, there is currently a transient nature where employees transfer from or into Y-12 as economics and employment interests dictate. Some sharing of subcontractor resources also occurs between Y-12 and other sites. The prime contractor at Y-12 is currently Lockheed-Martin Energy Systems (LMES).

Both primes are mainly confined to their areas and little intermingling with each other occurs. BJC assumed responsibility of a significant portion of the ETTP site on April 1, 1998 as an M&I contractor (Management and Integrating Contractor which includes an emphasis on integrating other contractors into the workflow). Prior to this date, LMES was the prime contractor at ETTP. A large variety of subcontractors coexist and provide services; for purposes of the pilot, only contracting mechanisms and specifications for LMER and BJC will be considered in detail. It is the intent of BJC to subcontract the vast majority of its workload (about 95%) over the next 2 years; therefore, it is imperative for this prime to have an effective mechanism for subcontractor safety and health oversight.

Subcontracts

Both primes and DOE use or abide by governmental contract requirements (Davis-Bacon, FAR, DEAR, Service Contract Act, etc.). BJC uses specific safety and health-related criteria to exclude from initial bids any contractors with poor safety records. For instance, with construction contracts, BJC uses a prequalification mechanism and included in any request for proposal or bid package would be the contractor's health and safety record of performance, and an indication of the company's Experience Modification Rating (EMR). The EMR is used to filter out potentially poor safety performers prior to contract consideration (an EMR < 1 is normally indicative of good safety performance; >1 requires the contractor to submit OSHA 200 logs and may disqualify).

Subcontractor Oversight

At ETTP, BJC has inherited much of what LMES had previously established for subcontractor oversight. BJC is beginning to establish a formal system to provide subcontractor health and safety oversight. Currently, Subcontractor Technical Representatives (STRs) provide some of the oversight responsibilities of the subcontractors. While some of the STRs may not have backgrounds in industrial hygiene, general, and construction safety, they do have sufficient on-site

expertise at their disposal to assure safety and health obligations are being met by the subcontractors. The STR provides day-to-day interaction with subcontractors as well as DOE, union personnel, and other contractors. The STR has a dual function in offering technical support to the contracting officer and subcontractors, and also providing some compliance oversight over the subcontractors.

The Oil Chemical and Atomic Workers (OCAW) Union also provides oversight as well as day-to-day interface with the prime contractor.

Oversight mechanisms of subcontractor control of safety and health in the workplace are shown (DOE also provides subcontractor oversight on a limited basis):

Site	**Subcontractor Pool**	**Subcontract Oversight**	**Union Activity*/Safety Committee Involvement**
ETTP - BJC	Large (and increasing) about 400 subcontracts with 400 additional for FY-99. Many of these may not require significant S&H oversight.	1. Subcontractor Submittal Requirements - ES&H review of specific portions of subcontract proposal. 2. When contract in place, STR assigned whom provides continual oversight (note: very few STRs are currently present). Inspections are as needed, not necessarily scheduled. Formal feedback is not necessarily given to subcontractor regarding safety performance. Abatements are normally immediate; however, some items linger due to costs or other factors. STRs indicated excellent additional S&H expertise is available onsite if needed.	OCAW oversight Has individualized safety committees (mainly for prime; however, subs are encouraged to have safety committees if size and length of stay dictate)
ETTP - BNFL	Average	Traditional contractor/ subcontractor relationship. Abatements immediate.	None (OT present) No safety committees

* Unions that have created and assigned individuals to provide safety and oversight, guidance, and employee representation on-site.

OT = Other Trades are present at the site but do not have full time representation nor oversight role.

Although the contract at ETTP was given to BJC in December 1997 and a transition period began immediately from this time to the April 1 conversion date, differing management style and unknowns are producing some confusion among health, safety and contract personnel at ETTP. Roles and positions are changing almost daily. While the end result will most likely produce needed changes, some stability in health and safety oversight will limit the increased probability of unexpected occurrences which normally accompanies significant change. Currently, BJC is still using contract mechanisms and tools developed by LMES, and existing directives, procedures and policies for the most part have merely been changed from “LMES” to “BJC”. A significant

problem also at ETTP is the intended creation of a fully functional "industrial park". This is producing an influx of privatized sites and subcontractors under limited to no control by the prime contractors. While the interaction of "privatized" employees with site contractors can and will directly impact health and safety, the issue of privatized or "reindustrialized" sites is not covered in this section.

BNFL was not extensively reviewed in terms of a health and safety program evaluation; rather a comprehensive inspection of industrial operations was provided at building K-33, where decontamination and decommission activities are currently underway. During the inspection, it was noted that subcontractors were used by BNFL and an examination regarding the interrelationship ensued for citation and accountability purposes. While BNFL functions more in the traditional health and safety role and structure, it should be noted that they are the first company to provide remediation activities to gaseous diffusion plants of this magnitude.

Both primes and DOE indicated that they have sufficient negative incentives and tools to correct inappropriate health and safety behavior on the part of any subcontractor; however, all parties also indicated they do not have positive incentives in place to enhance existing behavior or encourage greater than average health and safety subcontractor performance. A single exception is the subcontractor desire for future contracts. Because all sites have controlled access, "badge pulling" is the most significant and drastic motivational tool for rectifying subcontractor health and safety issues; it has only been employed occasionally.

While inspections or walk-throughs are commonplace for both primes and subcontractors and corrections are implemented, very little safety and health-related performance criteria or feedback is provided the subcontractor on any type of scheduled basis or when closing out the contract.

Oversight Resources

Unless otherwise specified in the contract, most safety and health monitoring is conducted on an as-needed basis by the STR, Unions, the prime contractor environment, safety and health employees, and DOE. All interviewees indicated that DOE provided monitoring or evaluation of the workplace on a limited, as-needed basis, and that the day-to-day activities were the contractor, or subcontractor responsibilities. All oversight parties indicated that tools, resources and expertise are available, although indication was given that response in some areas was slow (radiation protection, for instance). The contractors and DOE have indicated that the move from M&O (Managing and Operating) to M&I (Managing and Integrating) currently occurring at GOCO facilities will definitely enhance the integration of more subcontracting.

Subcontractors have indicated adequate remedies are in place to assist in accommodating unanticipated changes in work requirements such as a new OSHA regulation, DOE order, or other significant change impacting resource allocation of the existing contract.

Contract Language - Indemnification and Other Concerns

DOE, as well as prime contractors have decided to continue indemnification of contractors and subcontractors specifically in the area of nuclear hazards. This was an extension of the Price-Anderson Act and amendments, and DOE has recently indicated it will continue to include indemnification clauses in contractual arrangements. Both the Nuclear Regulatory Commission (NRC) and OSHA have recommended DOE modify its indemnification criteria. While it is unknown what OSHA-related contractual adjustments are planned by DOE or prime contractors if external regulation occurs, recommendation is made for both to alter contracts to indicate that the subcontractor will bear some of the impact from OSHA oversight activities that result in citations or other punitive actions.

Conclusions/Recommendations

Both prime contractors have control mechanisms in place to assure subcontractor compliance. Adequate oversight is noted and use of inspections, abatement procedures and further administrative controls are in place. Subcontractors and contractors are bound by contract to provide effective safety and health programs. Included below are recommendations to DOE and the prime contractors to further enhance the subcontractor health and safety relationship.

- ETTP contractors should examine the relative merits of the formalized subcontractor oversight structure at Oak Ridge National Laboratory (ORNL) which offers a day-to-day team oversight concept known as SHEST (Safety and Health Evaluation Support Team). This structure allows for increased accessibility to personnel and differing viewpoints, and an ability to move resources where they are most needed. In any event, a more formal approach should be established at ETTP; STRs will soon be outnumbered and subcontractor oversight will be critical as subcontracting increases dramatically.
- Stabilize the health and safety oversight at ETTP. The potential increased influx of contractors, subcontractors, lessees, CRADA appointees, privatized entities, the competitive nature of the contractors, and the recent change in prime contractors can make it extremely difficult to have consistent health and safety-related oversight.
- Currently, subcontractors from one prime can impact the health and safety of another prime or subcontractor with confusion over what remedy or accountability will occur to rectify the activity. Examine DOE oversight to assure a fair mechanism is in place to correct health and safety behavior between all responsible parties.
- Examine modifying or adding contract language to address contractor liability and accountability in regards to OSHA-related punitive actions (should external regulation by OSHA occur). Current indemnification clauses for nuclear hazards only allow for civil/criminal penalties with DOE-related rules, regulations, and orders.
- Provide a more performance-based mechanism for subcontractors. Presently, the only positive health and safety-based performance incentive for subcontractors is obtaining future work with DOE or the prime.

- Examine health and safety performance indicators and how they can be used to evaluate and provide feedback to the contractor.

Attachment 1
Individuals Interviewed

Employee Interviewed	Title	Findings
Mike Renfro	Project Procurement Manager (BJC)	Indicates that BJC uses STRs (Subcontract Technical Representatives) to monitor health and safety as well as other aspects of contractor performance and provided information regarding cost criteria, EH&S review of bid proposals, contracts, etc.
Rick Hayes	BJC STR for the IDM Subcontract (fixed-price)	Provided details regarding STR and the IDM contract currently in place for Building 1131 demolition and decommission (OSHA inspected this operation). Indicated there are only 10 to 20 STRs currently at ETTP. Provided extensive details regarding IH sampling, S&H monitoring that is conducted during subcontractor operations.
Douglas Albrethsen	IDM Project Manager	Subcontractor. Provided inspection site and input regarding current contractual relationship with DOE and BJC.

Attachment 2
Documents Reviewed

Documents Reviewed	Author	Relevance
Request for proposal #ET-001-12, M&I Contract, Exhibit "I"	BJC, May 26, 1998	Subcontractor Submittal Requirements Summary - indicates what the subcontractor needs to provide and whom receives these documents for review.
Subcontract No. 12K-ET001V, M&I Contract Exhibit "G"	BJC 5/98	Environmental, Safety and Health Requirements for contractors which includes Work Smart Standards.
Nuclear Hazards Indemnity	DOE, 2/94	Indemnification clause for nuclear hazards.. Clause does include provision for civil or criminal penalties, but only for DOE rules regulations and orders.
Hazardous Material Identification and Material Safety Data	LMER/LMES 3/96	Document stipulates that contractors must provide MSDS for all chemicals as per OSHA regulations
Hazardous Materials Reporting	LMER/LMES 3/94	Document stipulates that contractor is required by OSHA and EPA regulations to maintain records and report on quantities of hazardous materials onsite.
Limitations on Subcontracting	LMER/LMES 9/98	Subcontract limitations in regards to % costs.
PC-164PD Service Subcontract and Health Management	LMES/BJC	Details regarding subcontractor responsibilities in safety and health.
Reindustrialization of Oak Ridge Federal Sites	BJC	List of privatized companies or entities which have a lease, sublease, CRADA, or other arrangement with BJC and may have employees on site that can impact the health and safety of others.
General Terms and Conditions, Construction Contract Template (CON 6/98)	LMER/LMES 6/98	Template for construction contracts which also includes a clause for termination for cause if health and safety problems persist on the part of the seller.
DOE National Purchasing Agreements	DOE	Leveraged buying via national subcontractor agreements.
QA-312, Management Control Procedure, Issues Management Program	LMES/BJC Revision 0	Details regarding management process regarding situations that may be adverse to safety and health.
Subcontract - KAFaD Demolition Project - K-1131/ K-1410/ K-1031	LMES/BJC 10/97	Subcontract for D&D of specified buildings, including all health and safety-related specifications and criteria, including applicable Work Smart Standards.
Recorded instances (K-25)	1991-1997	Details of all accidents and near miss accidents occurring at ETTP by sub- and contractors from 1991 to 1997

Closeout Overview	LMER/LMES	Specifications for subcontractor closeout of task(s).
PC-164 and 165 Checklists and PC-165	LMES/BJC	Checklists identifying risk areas prior to subcontractor commencement of work, and technical review of procurement documents.
Subcontractor Personnel Training (Policy No WMD/P019)	K-25 (LMES/BJC)	Document indicating that Waste Management Division will provide subcontractor personnel with all applicable training.
Subcontractor use of Government Vehicles (Policy No WMD/P-015/R1)	K-25 (LMES/BJC)	Document indicating that subcontractors can use government-owned vehicles provided they meet specified requirements.

Attachment II

Occupational Health Care Program

On August 9 and 10, 1998, Dr. Rosemary Sokas and I participated as team members in the safety and health program evaluation of the DOE government owned, contractor operated facility, East Tennessee Technology Park in Oak Ridge, Tennessee. This evaluation is part of the DOE and OSHA pilot project to evaluate the transfer of DOE's health and safety enforcement to OSHA.

As team participants, Dr. Rosemary Sokas and I were assigned to evaluate the facility's occupational health care program and record keeping system. We both toured the facility, interviewed the record keeper, and reviewed worker's compensation records. Dr. Sokas interviewed the physicians, reviewed the occupational health care computer data system and reviewed medical records. I interviewed the nurses, reviewed medical records, reviewed the policies and procedure manuals and interviewed employees. The following are the findings of my portion of the evaluation of the occupational health program and the record keeping system. Dr. Sokas is providing a separate report of her findings.

Occupational Health Care Program

Background:

ETTP has approximately 2400 employees: 1700 Bechtel-Jacobs employees and 700 Lockheed-Martin employees. There are 50 subcontractor employees.

As of April 1, 1998, the facility's Management and Integration contractor is Bechtel-Jacobs. Prior to then, the facility was managed by Lockheed-Martin Energy Systems. Both the record keeping system for the facility and the occupational health care program (known at ETTP as the medical program) are now provided by Bechtel-Jacobs employees. The Occupational Health Care Program (OHCP) has undergone a recent downsizing from 23 employees to 12 (6 registered nurses to 2; 4 physicians to 2). This reflects a downsizing in the overall employee population. According to the joint interview with the medical director (physician) and the nurse, the occupational health care program is now responsible for 2400 employees - the Bechtel-Jacobs employees and the Lockheed-Martin employees. Very few subcontractors receive the services of the on-site occupational health services.

The future plan for ETTP is to subcontract or lease out 90% of the facility. The future plan for the ETTP's OHCP is to extend their scope to provide worker's compensation and medical surveillance services to Bechtel-Jacobs subcontractors. Whether other subcontractors and leasers will contract the services of the Bechtel-Jacobs occupational health care program in the future is uncertain.

Services:

The ETTP OHCP offers a comprehensive occupational health care program as well as non-occupational health care services. The non-occupational health services include voluntary physical examinations (based on age), sick call for non-occupational illnesses, administration of allergy injections, blood pressure checks, health and illness counseling and wellness programs. According to interviews, approximately 50-60% of the occupational health nurse's (OHN) time is spent these non-work related activities. Employees expect this service. However, given the downsizing of the occupational health staff, review of which of these services to retain may be imminent.

The occupational health services include preplacement and periodic health examinations with biological monitoring and other testing required for medical surveillance programs, treatment of work-related injuries and illnesses, return to work evaluations with accommodation of disabilities and DOE mandated drug screening programs. The occupational health unit is open from 6:30 AM until 3:00 PM. Physicians work until 3:30 and 4:00 PM and are available on a 24 hour beeper system. Emergency response is provided by a comprehensive emergency response team which includes ambulance transportation and is staffed by emergency medical technicians. Depending on the severity of the injury or illness, the employee is transported either to the occupational health care unit or to the local emergency room.

The occupational health care facility houses a laboratory which provides a variety of blood tests, urinalysis, spirometry (pulmonary function testing), x-ray and audiometry. The testing is appropriately preformed by certified individuals with equipment on-site. The Occupational Health Care Program also provides prescription safety glasses for employees as needed.

The medical director of the occupational health care program service reports to the Environmental Safety and Health department and attends weekly staff meetings in that department. The occupational health nurses and other staff report to the medical director.

The OHCP sees between 30-60 employees per day and conducts 0-5 physical examination per day. At times they have had 10 physical examinations per day.

The OHCP has instituted an effective Bloodborne Pathogen Plan with a needle and biological waste system that decontaminates the waste and pulverizes the sharps so that the waste can be disposed of in the regular trash.

Evaluation

Using the benchmarks in the VPP Occupational Health Care Assessment Tool, the ETTP Occupational Health Care Program was evaluated for eleven desired outcomes or elements. The results of the evaluation are described below.

1) Occupational Health Care Services are delivered consistently, effectively and in accordance with acceptable standards of practice:

The occupational health service has a comprehensive and well-written policy and procedure manual which appears to have been written in accordance with accepted DOE standards. The manual provides space for recording the last date of review for each policy or procedure. The dates recorded indicate that many of the procedures were written several years ago. There is no evidence of recent review. Since the staffing pattern of the occupational health service has changed, it may be necessary to update the procedure/policy manual to reflect changes in procedures affected by the reduction in staff.

In addition, a few of the sections of the manual could benefit from updating. For example, the physical examination section of the book lists the basic physical examination given to all employees on medical surveillance programs and then lists additional tests to be performed specifically for each hazardous substances listed (a hazard specific addition to the examination). For work with mercury, the procedure book states that no additional tests are necessary. However, urine mercury monitoring is recommended for workers who are potentially exposed to mercury.

Recommendation: Enhance the effectiveness of the procedure manual with regular review and update of the procedures to reflect latest recommendations for biological monitoring programs and the effect of staffing changes. Since there has been a reduction in staff, it is assumed that the current task load will affect the staff's ability to perform an update of the procedure/policy manual quickly. Nonetheless, it is recommended that the manual update begin.

There are written medical directives under which the nurses operate in accordance with Tennessee state law. These medical directives are complete and in good order. However, some recent changes in medications have been added in pencil and the most recent signature date is January, 1997.

Recommendation: Permanently change the medical directives to reflect the pencilled changes. Review and sign the medical directives annually to ensure appropriate legal coverage for the nurses.

2) Employees have access to occupational health services.

The occupational health service is open from 6:30 AM until 3:00 PM to accommodate shift workers. The occupational health service is available to each worker at some time during their work day. Medical surveillance and other physical examinations are scheduled during the employee's work day. Emergency transportation is available 24 hours a day. The employees have equal access to the OHCP.

3) OHCP ensures that employees are placed in jobs where they are able to perform essential job functions without harm to themselves or others.

ETTP job descriptions include physical demands and potential hazardous exposures of the job. These job descriptions are utilized during the preplacement examinations conducted on all employees. The on-site occupational health physician determines if the employee can be placed in a particular job or if accommodations must be made. Reasonable accommodation of both temporary and permanent disability is made as necessary.

4) Hazard Communication

Interviews with the OHCP staff indicate that they know the hazards present in the workplace and the most frequent injuries/illnesses reported on the log. The OHCP staff have access to all MSDSs of all chemical hazards located at ETTP through a computer data system. They can readily look up information related to exposures. If they need further information, the Industrial Hygiene department provides it.

However, the OHCP staff at ETTP are not involved with safety and health training programs. The industrial hygiene department provides formal safety and health training of employees. The OHCP staff does conduct informal training when employees visit the health unit if employees have questions or indicate a need for information.

The procedures for communicating the presence of new hazards do not appear to be written - however, the staff understands the process by which information on hazards is transferred. According to the nurse interviewed, the supervisor notifies (sends a special form) the industrial hygiene department (with copy to the OHCP) if there is a change in process, new chemicals being used, etc. or if new employees are working with a hazard. An Industrial Hygienist then performs exposure monitoring if necessary and tells the OHCP which employees will be affected by the change.
Recommendation: Ensure the procedures for communicating the presence of new hazards are written and included in the procedures manual.

5) OHCP staff are used to help identify workplace hazards.

According to interviews with the staff, the occupational health care program is closely tied to the safety and health program at ETTP. Communication of information is clear. For example, the occupational health care staff notify the safety representative and the industrial hygiene department if an ergonomic injury is diagnosed. This ensures that employees with symptoms of ergonomic stressors undergo an ergonomic assessment of the workstation. The weekly ES&H staff meetings also keep communication between the various safety and health program offices open.

According to the OHCP staff, it is rare for the nurses to participate in hazard assessment of the work site. The physician's participate occasionally. However, physician participation is usually limited to problem solving at the time of an incident. The industrial hygiene department routinely conducts the hazard assessment and walk throughs and communicates the information to the OHCP as necessary.

The OHCP staff are all board certified in occupational health and maintain continuing education to keep them up to date on new issues in this field. The company pays for continuing education for both the nurses and the physicians.

6) Biological monitoring of employees and employee medical surveillance programs are conducted for early recognition of adverse health effects and efficacy of protective measures.

As noted earlier there are written protocols for physical examination and biological monitoring/testing for specific hazardous substances. However, these protocols need to reviewed and updated to ensure the latest recommendations are included. Employees are enrolled in the program through supervisor notification to both the industrial hygiene department and the OHCP. The physician writes protocols for conducting an examination if not already in the procedures book. The OHCP scheduler adds the employees to the list for medical surveillance examinations and schedules the examination. When the employees arrives, the OHN conducts the preliminary examination and biological testing as appropriate. The physician finalizes the examination and determines whether the employee is able to perform the job functions safely.

Employees are notified by the scheduler of their upcoming required physical examination. The computer data system has a tickler file which automatically notifies the scheduler of upcoming required exams. The medical surveillance program is strong.

7) Signs and symptoms of adverse health effects among workers are identified early and treatment interventions are effective.

When an employee visits the OHCP for complaint(s) of suspected work-related illness/injury, the occupational health nurses and physicians evaluate the employee, then the nurses complete an internal form entitled Medical Incident Report as well as the First Report of Injury in compliance with the Tennessee Worker's Compensation laws. These forms are faxed immediately to the recordkeeper. All cases of complaints related to work are treated by the nurses and physicians as work related. The worker's compensation carrier determines compensability. The recordkeeper determines recordability.

When an employee comes to the occupational health care unit for sick call and does not state that the illness is work-related, the OCHP nurses do not have a mechanism readily available to compare symptoms to hazardous exposures. Without an easy to see list of hazards, the OHCP staff may not be aware of the employee's hazardous exposures. It is

possible that signs and symptoms of hazardous exposure may be missed and attributed to non-work illness.

Recommendation: Keep each employee's job description and hazardous exposures in the employee's medical file for ready access to the nurse as physical assessments are conducted. In this way, signs and symptoms of potential exposures can be identified early, the employees treated and industrial hygiene notified to ensure abatement of the hazard.

Treatment protocols appear to be effective and applied consistently. Interviews with employees indicate satisfaction with occupational health care services received. The occupational health care staff instruct the employees to return to the unit if symptoms persist. Follow-up visits are scheduled for work-related injuries and illnesses, however, it is the responsibility of the employee to keep the appointment. When employees do not follow-up with their appointments or do not return to the unit, the staff assumes that the employee is no longer having symptoms or problems related to the illness/injury. The staffing pattern does not allow for individual follow-up initiated by the OHCP staff.

8) Employees are removed from hazardous work as appropriate.

On the cursory review of the procedure manual, a written medical removal plan was not in evidence. However, the OHCP has policies for medical monitoring, and accommodation of disability. The OHCP is in compliance with regulations governing lead exposure and other specific hazards. Employees with work restrictions for work-related injuries and illnesses are accommodated

9) Health surveillance data in aggregate form are communicated to employees and management for future risk.

According to the interview with the OHN, the recordkeeper and industrial hygiene department conduct trend analysis. OHNs are not involved.
Recommendation: Occupational health physicians and nurses become involved in review of the occupational as well as non-occupational injuries and illnesses to note trends and potential clusters.

10) Recording/record keeping

Occupational health records - employee medical records appear to be kept in accordance with accepted standards for medical confidentiality and employee access. Specific procedures exist for access of medical information and these procedures are appropriate.

11) Occupational Health Care Program is evaluated and revised based on findings.

The OCHP has had routine quality assurance audits involving review /audit of medical records, etc. With the reduction in staff from 23 employees to 12, the quality assurance audit process has been dropped. It is recommended that another quality assurance program be devised that meets the level of staffing - perhaps a quarterly review or an annual review.

Summary

The evaluation shows a well-run occupational health care program that addresses both occupational and non-occupational needs of the employee population. The employees interviewed are satisfied with the OHCP services. However, certain procedures and the medical directives need to be updated to reflect the actual processes as they are currently performed with reduced staffing. The process for communicating hazards to the OHCP staff should be written to reflect the process that is in place. In addition, each employee's medical file ought to include a readily accessible page of information regarding the hazards to which the employee may be exposed. The occupational health care staff should be involved with employee training program re: adverse health effects of hazards through either writing, reviewing or delivering the information in the training program. Also, The OHCP staff should be involved with the company's trend analysis to enhance the epidemiological analysis of injury and illness patterns and to plan risk reduction strategies. As time allows, the quality assurance program should be reinstituted at a level which can accurately be performed by the existing staff. With recent reduction in OHCP staff it appears that changes in the OHC program may be necessary. The transfer of responsibility of the Occupational Health Care Program from Lockheed-Martin Energy Systems to Bechtel-Jacobs and subsequent staffing changes are recent. It will take time to adjust the procedures, determine which services shall be continued and adapt the written procedures to reflect those changes.

Recordkeeping

Year	Work Hours	Injury Incidence Cases	Lost Workday cases	Injury Incidence Rate	Lost Workday Rate
1996	7,513,270	152	66	4.05	1.76
1997	5,610,552	84	26	2.99	.93
1998 YTD	1,073,005	18	12	3.36	2.24
3 year totals and rates 1996-1998 (to 4/1/98)	14,196,827	254	104	3.46	1.64
1997 BLS Rates for SIC 2819 (obtained from VPP application)				3.6	1.8
Percent above or below BLS rate				***-3.8%***	***- 8.8%***

Worker's compensation first reports of injury, employee medical files, first aid logs and reports and medical incident reports from the occupational health care program were reviewed. These records were complete and in order but did not support the data recorded on the injury/illness log.

As stated in the background information, the recordkeeping system for ETTP is managed an employee of the prime contractor, Bechtel-Jacobs. This record keeper takes no responsibility for subcontractor recordkeeping. Bechtel-Jacobs is contractually required to report the injury and illness data of their subcontractors to DOE, and follow all regulatory reporting requirements, whether they be OSHA regulations, DOE Orders or Work Smart Standards. It was noted by the OSHA team that this system has been lacking and that no audit or quality assurance program of the subcontractors' injury and illness records has been conducted. According to the written ISMS, tracking the contractor' injury and illness data is the responsibility of the Subcontractor Technical Representative or Safety Advocate, without input or oversight from the Occupational Health/Recordkeeping department at the site. Evidence that this responsibility is being carried out was lacking as the OSHA inspection teams found it difficult to obtain subcontractors' OSHA 200 logs.

Evaluation

Problems noted were related to 1) timeliness of recording the injury/illness, 2) reporting of cases requiring work restrictions and 3) determining work-relatedness if a preexisting illness exists. In the first situation, the ETTP recordkeeper does not report a case that is questionable until the

work-relatedness is absolutely determined. For example - several cases of upper respiratory illness were claimed to be work-related by employees working in a building that has been reported as having indoor air quality (IAQ) problems. A thorough indoor air quality investigation is now underway. Air sampling has been done identifying molds and mildews. Employees working in this building are allowed to wear respirators on a voluntary basis due to the number of complaints related to IAQ problems. In some cases air sampling showed the molds and mildews to be greater than the outside air levels and in other samples, the same level as the outside air. One of the employees in question has a known allergy to these microorganisms, was diagnosed with "Industrial Bronchitis" and lost time from work. The investigation of the work-relatedness has not been determined. Therefore, the recordkeeper has not recorded these cases on the log even though months have passed since these cases were first reported. Per OSHA recordkeeping guidelines, if recordkeeper is in doubt about the relationship between an illness and work, the recordkeeper should record the case and then "line it out" at a later date if work relationship is shown not to exist.

In the second situation listed above, the recordkeeper reviews the physician's written recommendation for work restrictions. He then contacts the supervisor and asks the supervisor whether the employees work will be impacted for the next few weeks (or for the length of the recommended restriction). If the supervisor says "No", the case is not recorded on the log. This is contrary to OSHA's interpretation. According to OSHA, a case involving restricted work should be recorded if any activity that the employee performs within a year would be impacted by the restriction per conversation with Robert Whitmore, Director of the Office of Statistics. An example of a case that was not recorded by the ETTP record keeper is one of a janitor who injured his left arm. The physician stated in writing that the employee may return to work with the following restrictions: limited motion of the left arm and no lifting greater than ten pounds with the left arm. The supervisor said the employee's job would not be impacted by this restriction and the case was not recorded even though the employees job required emptying trash cans, mopping/sweeping floors, etc.

Thirdly, several of the upper respiratory illnesses related to IAQ problems (in the building described above) were determined to have been caused by the employee's known allergy to the molds in the building. Therefore the record keeper did not record these cases. OSHA states that if the work place aggravates, or contributes to an employee's illness, the case should be recorded, per consultation with the OSHA's Director of the Office of Statistics.

Telephone conversations with the DOE representative responsible for auditing the company's record keeping system indicated that a prior DOE audit discovered the same record keeping problems noted above - work restrictions not being recorded and timeliness of recording. DOE noted in its July 7, 1998 "for cause" report related to the IAQ issues that the cases related to this issue should have been recorded. Yet, the recording of the respiratory illnesses attributed to IAQ issues were still not recorded as of August 14, 1998. There were several cases over a period of two years that were not recorded in accordance with OSHA record keeping requirements. During an interview with the recordkeeper, he demonstrated a very strong familiarity with the OSHA's

Recordkeeping Guidelines for Occupational Injuries and Illnesses (the "Blue Book") and could cite exact page numbers for information regarding recordability. In addition, the recordkeeper has access to the DOE hotline if questions regarding record keeping arise. The recordkeeper is also familiar with the OSHA Internet site and interpretive letters and can gain information re: record keeping issues from these resources.

DOE uses performance-based contracts which vary among contractors, but may include injury and illness performance criteria. Subcontractors' injury and illness history is taken into account during pre-qualifying stages. The OSHA team cautions the use of monetary incentive awards that are linked to reductions in injury and illness rates as this may induce under-reporting.

In addition, it is noted that the medical department has a trend for recommending a prescription level of over-the-counter medications, especially anti-inflammatories. According to interviews, this is encouraged by the record keeper. Since non-prescription medications are non-recordable, this practice minimizes the number of cases recorded on the injury/illness log. For example, the physician orders the employee to take three 200 mg tablets of Advil, an over-the counter medication, four times a day. The directions on the Advil 200-mg label very clearly states: take one 200 mg tablet. The usual non-prescription dose is 200-mg. Dosages of greater than this are considered prescription strength. This practice , although not citable by OSHA is of concern because , in our experience, it is often a deliberate attempt to under- record injuries. In addition, the practice does interfere with the accuracy of the epidemiological information on the injury/illness log.

Recommendation: 1) Record all suspected injuries/illnesses within six days of the report even when in doubt of the work-relationship. When it is determined the case is not work-related, then line-out the case on the log. 2) Record all cases of work-related injury if the exposure or hazard contributes to or aggravates a pre-existing illness/injury. 3) Record cases of work restrictions when the restriction affects any activity the employee may perform within the year.

Recommendation: Regarding the concern over the lack of an integrated quality assurance program for subcontractor recordkeeping systems, it should be noted that OSHA's VPP requires the prime contractor to track the recordkeeping of the subcontractors. To meet the levels of the VPP program and the DOE requirements, Bechtel-Jacobs should pick up a central oversight role to ensure that their subcontractor's recordkeeping systems are integrated into the whole illness/injury recording. This enables a complete picture of the illness/injury rate for the facility. They should also institute an audit program that assures the subcontractor is in compliance with OSHA recordkeeping rules.

Attachment III

Medical Services

Site Visit Report: East Tennessee Technology Park (K-25 Plant) Medical Services
8/10-14/98
Rosemary K. Sokas, MD, MOH
Office of Occupational Medicine, DTS

Overview

The Occupational Health Services Program at ETTP has a total staff of 12, reduced from 23 since 10/96. Staff reductions hit nursing services hardest, with a reduction from 6 to 2 nurses. Physicians were reduced from 3 to 2. While the newer staffing levels are in line with general industry levels for a workforce of 2400, for the level of service historically provided at DOE sites, including comprehensive physical examinations for most workers, current staffing levels present challenges. The quantity and variety of historical exposures at the K-25 site and the absence of firm health outcomes information makes rational service reduction extremely difficult. For example, staff reductions have had an adverse impact on routine quality assurance activities, have eliminated routine worksite walkthroughs by clinic personnel, and have eliminated non-mandatory programs such as smoking cessation. Cutbacks appear to have been based on short-term financial considerations and appear to have followed the condensation of DOE orders concerning medical facilities, which may have been interpreted as permission to reduce services. Of particular concern was the entire elimination of on-site physical therapy despite documentation of long-term cost savings. Physical therapy services are now provided off-site and are covered under workers' compensation. However, there are significant concerns about the quality and responsiveness of the carrier, and the cost-shifting attempt appears to have resulted in a decline in services. The medical department itself reflects the problems of downsizing and outsourcing seen generally throughout ETTP facility, and at the same time recognizes those additional stressors in the population it serves. Despite staff cutbacks, however, the department is in the process of preparing for an accreditation visit from the Accreditation Association for Ambulatory Health Care, which is heavily focused on self-assessment and quality improvement measures. Additional staff include administrative, clerical support, and laboratory technicians. The unit shares office space with a clinical psychologist who provides services, including employee assistance, but who does not report administratively to the medical unit. Despite the change in prime contractor to Bechtel Jacobs on 4/1/98, the personnel in the health unit remain the same and records and procedures have not changed.

Serious attention to all aspects of health and safety appear to be required at the ETTP facility. Aspects of significant importance include developing meaningful feedback between front line supervisory personnel, safety, and occupational health that includes documentation of all hazards in changing work processes, follow-up and documentation of all incident investigations, including

recommended and implemented abatement measures, and improved record-keeping with medical input as required.

Item 1- Standards of practice/personnel qualifications.

Protocols are in place for complying with DOE and/or OSHA requirements, and the more stringent of the two is typically utilized.

Personnel have appropriate professional licenses. The program is directed by Dr. Robert Bernstorf, Sr., who has held this position since 8/97, following five years as a staff physician in the site. He is board certified in family practice, in emergency medicine, and in preventive medicine (occupational medicine). He reports to Dennis Stevenson, PhD, Functional Manager for Environmental Safety and Health, who is also responsible for Industrial Hygiene, Safety, Radiation Health and Training. A second physician, Dr. Timothy Oesch, has worked at the site since 1987 and currently provides the bulk of direct patient care. The medical director participates in management meetings with the other branches of ES&H on a weekly basis.

Both physicians and nurses receive paid continuing education annually, generally including American Occupational Health Conference meetings and meetings held by the DOE's Occupational Medicine and Medical Surveillance Division, among others. Continuing education targets DOE-specific hazards such as beryllium. Both physicians are members of the American College of Occupational and Environmental Medicine, among other professional organizations. Medical department personnel participate in a variety of required courses, including HAZWOPER and emergency response training.

Item 2- Access to services.

On-site health care is provided as required by DOE orders. Trained EMTs are on duty around the clock with physician back-up coverage. A bloodborne pathogen protocol is in place for clinic personnel, for EMTs, and for housekeeping. Hepatitis B immunization is available, and there is a protocol for after-hours exposure. Employees work extended-hour shifts that routinely overlap with standard operating hours for the health unit, and surveillance programs, walk-in health care and illness and injury follow-up appear to be readily available to personnel on all shifts.

Items 3 and 8- Job accommodation

Supervisors complete a form that lists the physical requirements of each job at baseline and any time there is a significant change in job duties. This form includes a check off for other exposures, but these are broad categories ("chemicals") rather than specific exposures. The supervisors themselves identify employees with specific exposures (asbestos, lead, noise, etc) and refer them to industrial hygiene, who refers the information to the medical department. The form, together with the occupational history provided by the patient, serves as the written basis of exposure assessment for the medical record, and is used to determine return to work restrictions.

Work restrictions for health hazards as well as for musculoskeletal hazards (for example, restriction from working with hepatotoxins) are usually implemented by the supervisor without problem, and Human Resources helps to resolve difficulties if necessary. Workplace accommodation appears to be readily available. Employees are increasingly concerned about future accommodation in an era of outsourcing and downsizing, however.

Item 4- Hazard communication

Medical Department personnel have access to Material Safety Data sheets through a computerized system. A wide variety of medical surveillance programs are in effect, and communication between the medical unit and safety, industrial hygiene and radiation health is generally good. However, there is still a "need to know" attitude among production supervisors that raises concerns about the complete and timely forwarding of potential hazards from new processes. There is a sense that the medical personnel need to "know to ask". In this context the loss of "Q clearance" by all medical personnel (which was seen as not cost effective) is perceived as a possible barrier to free communication with certain production supervisors. The recent severe staff reductions exacerbate the problem, since, at the time of our visit, there was no longer time for monthly work-site walkthroughs. In response to the DOE's For Cause Review, however, these worksite visits by both physicians and nurses appear to have been re-instituted. The medical director is a member of the labor-management health and safety committee. Worksite evaluations and intervention for ergonomic risks are readily obtained.

The medical department has had input into bloodborne pathogen training, but appears to be under-utilized in other hazard training programs.

Items 5/6/7- Clinical programs/medical surveillance/diagnosis and management

The medical department initiates and forwards reports of all injury and illness visits to the safety department (medical incident report). There appears to be no disincentive to reporting at this level. The philosophy of the department appears to be to attempt to remain neutral in terms of making work-relatedness determinations, deferring to outside physicians, to the workers' compensation system, and to the safety office. However, significant problems are perceived with the compensation carrier, and the OSHA team and prior DOE inspections have found significant under-reporting in injury and illness record-keeping as performed by the safety office. The attempt to remain neutral appears to be a response to several factors, including tense labor-management relations, indoor air quality concerns that are now undergoing ongoing outside investigation, and past problems within the medical department itself resulting in the over-diagnosis of cyanide toxicity.

Medical records are kept confidential, and the lack of an appropriate Medical Access Order equivalent during the site visit justifiably resulted in concern about access (this was resolved appropriately). While the medical records are computerized, there is no review of aggregate data for purposes of medical surveillance. This is partly due to the UNIX system, which is not user-

friendly. Another barrier, however, is the difficulty of looking for patterns because of the high rate of internal job mobility, both between sites and between job categories. Because the three DOE sites were for many years the chief source of employment regionally, individuals would frequently change jobs (for example, from security to janitor) during periods of downsizing rather than obtain work within a given trade elsewhere. The medical department does receive aggregate illness and injury/ lost work time reports from ES&H.

Based on physician interviews and brief chart review, it appears that signs and symptoms of adverse health effects are identified early, and that appropriate interventions are implemented. Musculoskeletal disorders (epicondylitis, knee strain), nerve entrapment syndromes (carpal tunnel and ulnar nerve entrapment), and slips and falls account for the bulk of work-related disorders. Infrequent events such as uranium exposure and nitric acid or hydrofluoric acid exposure are handled rapidly and effectively. First aid and decontamination facilities are available. Biologic monitoring is conducted depending on exposures: for lead, occasional results in the 20 mcg/dl range blood lead are noted in the firing range, primarily. Random chart review revealed appropriate temporary medical restrictions imposed based on potentially sedating side effects from medication for injury; outside university-based toxicology referral for questionable cyanide toxicity, found not to exist; instances of both over-diagnosis (a diagnosis or RADS with negative methacholine challenge following outdoor opening of waste-containing drum) and under diagnosis (eosinophilia and drop in FEV_1 in worker with cough following exposure to molds in vault) were noted for respiratory disease. Asbestos surveillance forms might benefit from additional information concerning smoking and smoking cessation attempts (note staff cutbacks). The policy of having only abnormal chest x-rays interpreted by B readers potentially reduces the sensitivity of the program (one approach to correcting this would be to have all asbestos surveillance films read on one occasion by a B reader, and compare results with radiology reports).

Item 9- Recording/reporting.

As noted above, significant under-reporting was found on the OSHA site visit and on prior DOE visits. This problem occurs at the safety department, and increased input from the medical department might be helpful. In particular, it would be important to have the safety recommendations followed up until implemented, and information concerning the recommendations and follow-up returned to the health unit for inclusion in the medical record.

Item 10- Program evaluation and revision.

As noted above, formal review for quality/accreditation is underway, although focused on clinical care rather than occupational services. Opportunities for improving line-supervisor input (perhaps by requiring all production changes to be jointly reviewed by IH and medical), aggregate data review, and direct worksite walkthroughs could be explored.